WO 2005/118611 PCT/US2005/001768

CLAIMS:

1. A nucleic acid molecule comprising nucleic acid sequence encoding microutrophin under the control of regulatory sequences which direct expression of the microutrophin in a host cell.

- 2. The nucleic acid molecule according to claim 1, wherein the microutrophin comprises an internal deletion of the native utrophin protein of hinge region 3.
- 4. The nucleic acid molecule according to claim 1, wherein the microutrophin comprises a C-terminal deletion from exon 63 through the C-terminal amino acid of the native utrophin protein.
- 5. The nucleic acid molecule according to claim 1, wherein the microutrophin comprises the N-terminal sequences of utrophin through at least two hinge regions, and a C-terminal region from repeat 22 through exon 63.
- 6. The nucleic acid molecule according to claim 1, wherein the microutrophin is selected from the group consisting of human microutrophin having the amino acid sequence of SEQ ID NO: 4. canine microutrophin having the amino acid sequence of SEQ ID NO:2, and mouse microutrophin having the amino acid sequence of SEQ ID NO:5.
- 7. The nucleic acid molecule according to claim 1, wherein the regulatory sequences comprise a constitutive promoter.
- 8. The nucleic acid molecule according to claim 1, wherein the regulatory sequences comprise a muscle-specific promoter.
 - 9. A vector comprising the nucleic acid molecule of any of claims 1 to 8.

WO 2005/118611 PCT/US2005/001768

10. The vector according to claim 9, wherein said vector is selected from the group consisting of an adeno-associated viral vector and a plasmid vector.

- 11. A pharmaceutical composition comprising a vector according to claim 9 or 10 and a physiologically compatible carrier.
- 12. The pharmaceutical composition according to claim 11, wherein the carrier is a buffered saline solution.
- 13. Use of a nucleic acid molecule according to any of claims 1-8 in preparing a medicament.
- 14. Use according to claim 13 wherein the medicament is useful for treatment of muscular disorders.
- 15. Use according to claim 13 wherein the medicament is useful for treatment of Duchenne Muscular Dystrophy.
- 16. A method of treating dystrophin deficiency by delivery of a vector comprising a nucleic acid molecule according to claim 1 and a physiologically compatible carrier.
- 17. The method according to claim 16, wherein the vector is an adeno-associated viral vector.